dti

THE SUSTAINABILITY OF UNIVERSITY RESEARCH

A consultation on reforming parts of the Dual Support system

OFFICE OF SCIENCE AND TECHNOLOGY

dti

The DTI drives our ambition of "prosperity for all" by working to create the best environment for business success in the UK. We help people and companies become more productive by promoting enterprise, innovation and creativity.

We champion UK business at home and abroad. We invest heavily in world-class science and technology. We protect the rights of working people and consumers. And we stand up for fair and open markets in the UK, Europe and the world.

Contents

Executive summary

Innovation is an essential part of the productivity growth which will help achieve prosperity for all. The UK has an excellent research base, which provides an important foundation for innovation. This was recognised by the UK Government's science strategy *Investing in Innovation* and the 2002 Spending Review, which made available significant additional funds to support the UK's research base.

However, one of the major issues highlighted by *Investing in Innovation* was that Higher Education Institutions (HEIs) operate under a low price culture, over-trading in research and neglecting longer term investment in infrastructure. This risks damaging the quality and capacity of research in the UK. Therefore this document proposes significant reforms of how the Dual Support system works, building on the ideas in *Investing in Innovation* and the extra funding allocated in the Spending Review in order to start moving the UK's research base on to a long term sustainable footing.

We[1] are proposing an interlinked set of reforms to the ways in which HEIs cost and price their research and Research Councils fund and account for it:

- We intend to make explicit HEIs' central responsibility for the sustainability of their research; they will be placed under a responsibility at institutional level to recover the full economic costs of the totality of the research that they undertake.
- We are extending the TRAC methodology to allow HEIs to calculate the full economic costs of individual research projects.
- We will deploy additional resources of £120 million per year from 2005–06 so that Research Councils pay a larger contribution to the costs of the research they fund in HEIs. A key proposal is that in future Research Councils should meet a percentage of the full economic cost of each project. This change has many implications and we are consulting on the issues raised by different methods of implementation.
- Others who commission research in HEIs will also have to play their part if the UK's research base is to remain healthy, and this document sets out draft guidelines for HEIs to use when interacting with non-Research Council sponsors of research.

We would welcome your comments on the implementation of these reforms.

This document is being published alongside the Funding Councils' consultation on Research Assessment.

1 OST is responsible for the UK-wide Research Councils, on behalf of the UK Government. HEFCE is responsible to DfES. The Higher Education funding bodies in Scotland, Wales and Northern Ireland report to their devolved administrations.

Definitions of terms used in this consultation

- **Funders** of the research base are those who primarily seek to sustain a healthy university research base and to fund work within it for the production of knowledge and trained people for the public (scientific) good.
- **Users** of the research base are those who use it as a resource from which they can recruit trained staff and purchase research primarily for their own purposes (which might include public goods defined more widely than in this document, such as the need to base Government policy on a foundation of evidence).
- **Sponsors** of research includes both funders and users of the research base.
- **Providers** of research are those who carry out research. In this consultation we use this term to mean HEI research providers.
- **Higher Education Institutions (HEIs)** means the universities and colleges of higher education that comprise the Higher Education sector.
- **QR** is a term used to describe the element of the Funding Councils' block grant to HEIs whose distribution is based on the outcomes of the Research Assessment Exercise; QR stands for 'quality-related research funding'.
- **Science Research Investment Fund (SRIF)** is capital funding to HEIs for equipment and other infrastructure.
- **Direct costs** are normally defined as those costs directly attributable to an activity. However, in this document the term generally refers to those direct costs of a research project which are at present eligible for Research Council support, i.e. equipment, consumables, travel & subsistence and staff directly employed on the grant, but not salaries of existing academic staff.
- **Full Economic Cost (FEC)** is the total cost to an HEI of an activity or project. It includes all direct and indirect costs, and thus includes the costs of all staff time spent on the activity, and an appropriate share of the costs of maintaining and developing relevant aspects of the research infrastructure.
- **Transparent Approach to Costing (TRAC)** is a methodology established in the Higher Education sector by the Transparency Review to estimate, consistently and reliably, the full costs of institutions' activities. For public accountability, five cost figures are reported, namely Teaching (public funds), Teaching (non-public funds), Research (public funds), Research (non-public funds), and Other. Each activity includes staff costs derived from activity based costing exercises, elements for the cost of maintaining and renewing infrastructure, and for the costs of capital employed. It should be noted that TRAC is a costing methodology; it does not itself set a price for an activity, nor does it directly relate to the income for that activity.
- **Government** in relation to the UK Research Councils, and hence generally in this document, means the UK Government. In Scotland, Wales and Northern Ireland, the devolved administrations have responsibility for the QR component of funding.

1 Introduction

CONTEXT

1. The Government's and the devolved administrations' central economic objective is to achieve high and sustainable levels of growth and employment. To succeed, the Government is committed to increasing productivity in the UK. Research and development and innovation are very important elements in increasing economic growth and productivity.

2. In accordance with this view, the UK Government's Spending Review in July 2002 announced major increases in funding for research; these allocations are described in detail in *Science Budget 2003–04 to 2005–06*.[2] The growth rate of the Science Budget over this period will average 10% year-on-year in real terms. Major increases in resources for Funding Councils to use to support research have also been announced. Alongside the Spending Review, the Government published its strategy for science, engineering and technology, *Investing in Innovation*. And more recently the Government has made further announcements on research in England in its White Paper *The Future of Higher Education*, the Scottish Executive has published its *Framework for Higher Education in Scotland* and the Welsh Assembly has published *Reaching Higher – A Strategy for Higher Education in Wales*.

3. These documents recognise that the UK research base has many strengths; UK universities perform well compared to institutions in other countries, producing relatively high volumes of top quality research. Although the UK only has 1 per cent of the world's population, it carries out 4.5 per cent of world science and produces 8 per cent of scientific papers. These papers receive 9 per cent of citations. Furthermore, on average, UK scientists receive about 10 per cent of internationally recognised science prizes.

4. *Investing in Innovation* looks closely at the current funding of the research base. It recognised that research in HEIs is now supported from a range of sources, including charities and industry as well as Government. This diversity has increased in recent years as bodies outside Government have funded, and contracted with, HEIs to carry out greater volumes of research. Third parties outside Government now provide HEIs with over 40 per cent of their funding for research, compared to less than 25 per cent in 1988–89. Over little more than a decade total research income in universities has risen by around 50 per cent. This dramatic increase has been driven mainly by the growth of third party income.

5. While these increases are very welcome, the underpinning core funding from Funding Councils, which is intended among other things to complement Research Council funding, has not kept pace. The differential growth rates of the different funding streams have changed the balance of HEI research funding. From a position in the late

2 Full references and web addresses for all documents cited can be found at the end of this document.

1980s where Funding Council resources roughly equalled all other sources of research funding, they have grown at a slower rate. As a result Funding Council resources have been increasingly thinly spread, and this has contributed to a serious and persistent failure by HEIs to invest in research infrastructure.

6. In the short term, this under-investment has greatly increased the apparent productivity of the research base but in a way which now risks its long term sustainability. As a result, some key issues now need to be addressed to ensure the future of research in UK HEIs. These are:

- a lack of clarity over what level of support (if any) Funding Council money is intended to provide to specific projects and programmes funded by others;
- the accumulated under-investment in the HEI research infrastructure;
- the incentives which exist at present for HEIs to take on increasing volumes of research without sufficient regard for the long term viability of the institution;
- the need for HEIs to manage their research and finances to match the increased complexity and demands of diverse funding sources.

7. As stated in *Investing in Innovation*, the Government continues to believe that the Dual Support system is the most effective way to fund university research. The Government has announced major increases in its investment in order to address the issues described above, with specific funding streams for capital and equipment, additional resources for QR and additional funding for Research Councils to pay more for the existing volume of research they support in HEIs (as well as funds to invest in new science).

8. In the area of capital and equipment, the Government and devolved administrations are building on the success of the Science Research Investment Fund (SRIF) with SRIF2, a dedicated funding stream worth over £500 million in both 2004–05 and 2005–06. This will allow HEIs to invest with greater certainty for the long-term. £950 million of this new resource for the two years has been allocated to HEIs to address under-investment in research infrastructure. This money was allocated on a formula basis in February 2003. The remaining £50 million is being retained for strategic science research restructuring, including possible mergers between universities.

9. Funding Council support for research in HEIs (QR) is also increasing. For the academic year 2003–04 the figures across the four parts of the UK are as follows (£ millions):

England	Scotland	Wales	Northern Ireland
£1,042 M	£138.6 M	£61.5 M	£36.3 M

10. But money is not enough, and hence this consultation concerns proposals to reform the workings of the Dual Support system. It takes as a starting point that there should continue to be a dual-stream system. Building on it, and on the increased investment, the Government will make explicit the responsibility of HEIs for ensuring the long term sustainability of their research enterprises. Central to this is the requirement at institutional level that HEIs are able to demonstrate that, year on year, they are recovering the full economic costs of the research that they carry out

(including the ongoing capital cost of the equipment and other infrastructure their research consumes). This is discussed further in Chapter 4.

11. The developments proposed in this consultation take place against the background of the announcement by the Government and the devolved administrations, and in *The Future of Higher Education*, that the Arts and Humanities Research Board will become a Research Council funded from the Science Budget alongside the seven existing Research Councils. The aim is to achieve a fully functioning statutory research council by 2005. As a result, the scope of the recommendations and actions in *Investing in Innovation* will need to be extended to incorporate research disciplines currently funded by the AHRB.

12. The Government is also creating a Funders' Forum as a new channel for discussion of research strategies and of the sustainability and financial health of the UK research base. We hope that a wider group, including representatives of users and HEIs, will have the opportunity to contribute to these discussions.

13. Throughout this document we have taken account of the need to balance the requirements for financial accuracy and accountability with the avoidance of excessive bureaucracy. In placing the research base on to a sustainable basis we wish to avoid placing undue administrative demands on HEIs, which would divert resources from research.

Why are we consulting?

14. In order to implement the *Investing in Innovation* recommendations on the sustainability of the UK's university research base, a significant reform of the operation of the Dual Support system is needed. The Government has signalled its intention to deliver the necessary reform by making available significant new investment. But for these reforms to work, all those who have a stake in the long term sustainability of the university research base will need to play their part. This consultation is therefore designed to elicit the views of all interested parties on how we should proceed with the reforms that we propose:

- We intend to make explicit HEIs' central responsibility for the long-term sustainability of their research. This will take the form of a responsibility at institutional level to recover the full economic costs of the totality of the research that they carry out.
- This new responsibility will have implications for all sponsors of HEI research, including the Research Councils but also business, research charities, Government Departments and possibly the EU.
- We are proposing fundamental reforms to the ways in which HEIs cost and price their research and Research Councils fund and account for it as a core part of the shift to a culture of full cost recovery in HEIs. We need to understand the implications of this aspect of the proposed reforms before we proceed.
- Specifically, we propose that Research Councils pay a fixed proportion of the full economic cost of each research project, using both existing resources and

the new £120 million per year from 2005–06 which has been provided to increase the contribution that the Research Councils make to the cost of the existing volume of research that they support. We must decide on the detailed implementation of this proposal; we need to ensure that this money is allocated in ways which protect the balance of funding across disciplines and which do not provide perverse incentives for either Research Councils or HEIs.

- We need to establish a basis on which HEIs can interact with research sponsors other than the Research Councils in ways which support the sustainability of the research base.

15. This consultation is being undertaken by the Government on behalf of a UK-wide group, under the leadership of the Minister for Science and Innovation, Lord Sainsbury of Turville, which is tasked with implementing *Investing in Innovation*. The issues discussed in this document have been developed in a working group which included representatives from Funding Councils, Research Councils, HM Treasury, DfES, DTI and the devolved administrations.

16. In parallel with this consultation, the Funding Councils are consulting on changes to Research Assessment. More details are available from *www.ra-review.ac.uk*.

2 The cost of research in HEIs

Estimating the full economic cost of individual research projects

17. If HEIs are to be able to recover the full economic costs of their research, they need to be able to determine those costs reasonably accurately and in a way which research sponsors accept. They need to do this in a consistent way across the sector in order to establish a common basis for dialogue with research sponsors. This is true in aggregate at the institutional level, but it is also true at the level of individual projects. In future, HEIs will have to place much greater emphasis on setting prices at a level which properly reflects the contribution that each project will make to full cost recovery across their portfolio. Only by doing this will they be able to get away from the low price culture from which the sector has suffered for many years and be sure of recovering all their costs in aggregate.

18. Therefore a key action is the need to develop a method for estimating and accounting for full economic costs at individual research project level, in a way that is simple and also compatible with the higher level management and financial accounting procedures used for reporting gross expenditure in HEIs.

19. This section describes the work being done to achieve this objective. This work is not directly part of this consultation exercise but it forms an important part of the context for some of the proposals in this document.

20. The Joint Costing and Pricing Steering Group (JCPSG), an HE sector-led body which includes Funding Council members, has the objective of helping HEIs to have costing and pricing processes that are integrated with their financial and academic decision-making, and that form part of a financial strategy and management process which ensures that activities are sustainable in the long term. OST has agreed with JCPSG jointly to develop the existing Transparent Approach to Costing (TRAC) methodology so as to enable institutions to estimate robustly and reliably the full economic cost (FEC) of individual research projects. This project was announced to HEIs in a joint letter from Dr John Taylor, Director General of Research Councils, and the Chief Executives of the Funding Councils, dated 17 February 2003. The work will be done in two phases, with an initial pilot in a group of ten universities covering a representative cross-section of HEIs.[3] Consultants have been appointed to help with this phase; a steering group including representatives of funders and JCPSG will oversee the work.

21. Once the pilot phase is concluded definitive guidance will be produced in consultation with other funders and users of the HEI research base. This guidance will then be disseminated across the higher education sector. It is intended to have the

3 The pilot group comprises: Birmingham, Cardiff, Dundee, Heriot-Watt, Imperial, Leeds, Oxford, Portsmouth, Teesside, Warwick.

methodology in place in HEIs by summer 2004. This will allow institutions to submit grant proposals costed on the new basis from the start of the 2004–05 academic year and the Research Councils to be able to release funds from the start of the 2005–06 financial year (see Chapter 3).

Funding council support for research

22. The aim of Funding Councils' research block grant funding (QR) is to provide an underpinning research capability for HEIs. This can be defined in a range of ways, but there is general agreement that it is intended to provide HEIs with:

- the salary-related costs of permanent academic researchers;
- a contribution to the costs of training new researchers;
- the resources to pursue some 'blue-skies' research;
- the resources to build research capabilities (support staff, basic consumables and infrastructure);

all of which provide the base from which permanent academic staff can make and carry out credible proposals for research project funding from Research Councils and other research sponsors. In certain disciplines, especially in the arts and humanities, Funding Council block grants do not simply provide a base but are the main source of research funding.

23. The Cross-Cutting Review of Science and Research noted that there was strong evidence, principally from comparing TRAC cost data with institutional research income, to suggest that a significant gap has arisen between the cost of the sector's research activities and the associated income. Following the policy and spending announcements made in the 2002 Spending Review, over the next few years resources will start to flow into HEIs to address the back-log of research infrastructure investment and to help meet the full costs of Research Council projects.

Review of financial reporting and activity costing

24. In parallel with this consultation, the Funding Councils are reviewing HEIs' financial reporting arrangements. In particular, that review includes work to validate the basis of the two capital adjustments included in the TRAC methodology in all HEIs. This project is being undertaken by a group chaired by John Bull, former Vice Chancellor of Plymouth University, on behalf of the Funding Councils. Its report is expected to be published by the end of June 2003.

3 Research Council contribution to the cost of research in HEIs

Current position[4]

25. The present arrangements for Research Council funding of HEI Research date back to the 'Dual Support transfer' of 1992. This established the practice of Research Councils making a contribution to HEIs' indirect costs of research, in proportion to the costs of the additional staff employed on projects. The present contribution stands at 46% of such costs. The Dual Support transfer also clarified the direct cost base which the Research Councils fund through project and programme grants and the role of Funding Council research funding through block grants. These arrangements were made on the assumption that the Funding Councils were responsible for providing the underpinning support for Research Council activities in HEIs. Taken together the two elements of Government support for this research were expected to cover the full economic costs of this activity.

26. In 1999–00, of the £528 million that Research Councils provided for research grants, the indirect cost contribution accounted for about £113 million. Some Research Council units and centres located within HEIs are funded in a similar way, although there is a variation in practice across the Councils.

27. In addition the Research Councils also fund postgraduate studentships in HEIs (£164 million in 1999–00, of which approximately three-quarters went directly to students as stipends). There are two main types of studentship; taught masters and research degrees (MRes and PhD). Neither explicitly includes an indirect cost element, but they attract fees and a Research Training Support Grant of £1000 a year. These provide some measure of indirect cost contribution. The Funding Councils' funding formulas also include post-graduate research student numbers as part of the volume element, i.e. as part of the staffing of the department.

28. Research Councils also fund fellowships in HEIs, which currently do not attract any indirect cost contribution. The same is true of the fellowship schemes operated by the Royal Society and Royal Academy of Engineering on behalf of the Government.[5] In total the present level of funding for these fellowships is about £75 million a year.

29. An important finding of the Cross-Cutting Review of Science and Research was that the 46% indirect cost contribution which the Research Councils make to HEI research costs has come to be seen by other sponsors of research as the 'going rate' for the contribution which they should make. But it is clear that the 46% contribution

4 The figures in this section exclude AHRB.

5 The fellowships schemes discussed in this document support research by providing funds for salaries. They are not the same as the honorary fellowships conferred as a mark of distinction by learned societies and academies.

was never intended on its own to cover the full economic costs of research and so there is no particular reason why it should have validity for use by other sponsors. A key aim of the Government's reform programme is to replace this practice with a proper dialogue about pricing between HEIs and non-Research Council sponsors of research, based on a sound understanding of the true costs of research. This is discussed in detail in Chapter 4.

Our proposal – summary

30. The 2002 Spending Review settlement provided an additional £120 million per year from 2005–06 to allow the Research Councils to pay a larger contribution than at present to the full economic cost of research in HEIs. **We now propose that Research Councils pay a fixed proportion of the full economic cost of each research project, rather than identifying a particular set of direct costs and a tariff to cover some part of the indirect costs.**[6]

31. The Government has set itself the task of developing a project costing and funding system which, along with other initiatives, puts the UK research base on a sustainable footing while also ensuring that it remains of the highest possible quality. A key aim is to avoid any future funding gap.[7] This requires Government to:

- change the culture among providers, users and funders of HEI research so that they place as much importance on sustainability as on short term costs and outputs; and therefore
- help HEIs and the funders and users of their research base to understand the true costs of research and ensure that these are properly reflected.

32. The current system obscures the true costs of research. We believe that the Government's aim of putting the research base on to a sustainable footing can only be achieved if the system used for the key interaction between HEIs and Research Councils actively promotes an understanding of the true costs of the work supported.

Other advantages

33. In addition to helping achieve the objectives mentioned above, our proposal removes the need for Research Councils and others to establish unhelpful distinctions between different types of cost. Specifically, it removes the distinction between academic staff and other researchers, which will help to deliver the commitment that the Government and its agencies should not hold back innovation in the way HEIs organise and manage their staff by unnecessarily assuming particular models for research funding.[8]

6 This was referred to as option C in the flyer publicising this consultation which was published in April 2003.

7 See, in this context, the 1997 Dearing report, *Higher education in the learning society.* (Full reference at the end of this document.)

8 See the Government's response to the House of Commons Science and Technology Select Committee's report on short-term research contracts in science and engineering.

Some alternatives and their disadvantages

Retain current system

34. The approach which might involve the least work in the short term would be to retain the current system and use the £120 million to increase the 46% figure. Funds would be divided amongst the existing Research Councils in proportion to their planned spend in 2005–06 on research grants in HEIs. HEIs would use the proposed project costing methodology to calculate the full economic cost (FEC) of each project that is submitted, and decide how to meet the element of indirect costs which was not funded by the Research Council grant.

35. We estimate that the percentage contribution to indirect costs would rise from 46% to 55–60%. This assumes that both existing and new (Roberts Review) fellowship schemes are included at the same contribution level as for project research staff.[9]

36. As well as being easy to implement, adopting this alternative would minimise the risk of unintended consequences. However it would also perpetuate the short-comings and perverse incentives of the present system. In particular, it would continue to encourage HEIs and the Research Councils to ignore the true costs of research in their interactions, and it would continue to encourage HEIs to seek support for extra staff (on whose costs they receive a contribution to indirect costs) at the expense of equipment (on which they do not). We believe that these disadvantages significantly outweigh simplicity of implementation.

Change the basis for the calculation of indirect costs

37. Another possibility would be to expand the definition of the direct cost base from which the indirect costs are calculated. For example, elements could be included to reflect the costs of:

- operating and maintaining equipment;
- space usage and associated accommodation costs;
- permanent academic staff time.

Such a change could be used to address the concern that the present indirect cost formula encourages HEIs to bid for fixed term staff and tends to exacerbate the underfunding of infrastructure. It could also be used to clarify various uncertainties which exist in the current system.

38. The level of contribution to indirect costs would depend on the size of the direct cost base that was chosen; given that these would be larger than under the previous alternative, the level would be less than the 55–60% discussed above.

39. While this approach could avoid some of the disadvantages of the previous possibility, it would achieve this at the expense of some loss of simplicity but still not provide the transparency that we believe is needed to underpin the behavioural changes which the Government wishes to see.

9 This estimate also takes account of the announcement already made that the Government wishes to increase average research assistant salaries from £21,000 to £25,000.

SUR 3.1: Are there options or alternatives that have not been set out here which would provide a better overall solution?

How our proposal might work in practice

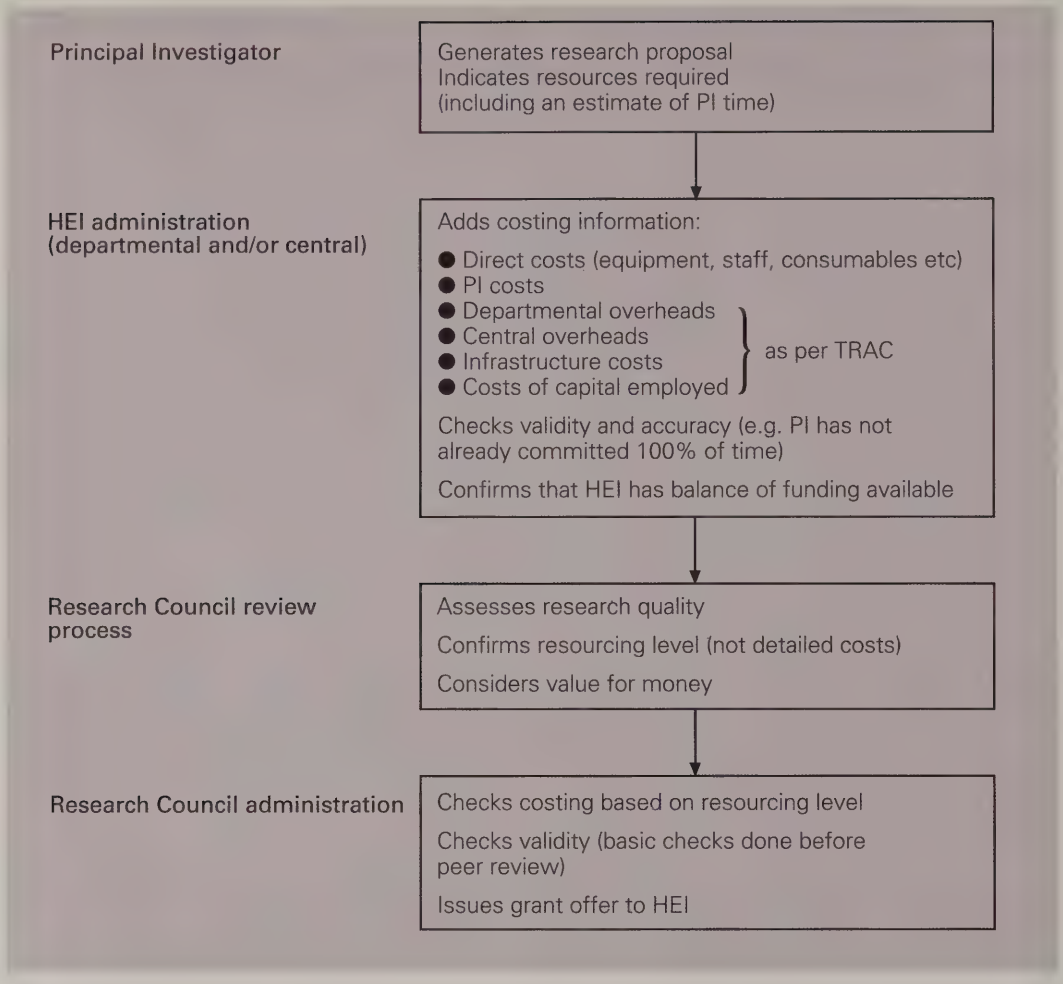
40. The details of how our proposal would work depend on precisely how TRAC is extended as a result of the project described in Chapter 2. The following should therefore be treated simply as an illustration which may help consideration of the various issues discussed below.

41. Within HEIs:

- the TRAC methodology would define the overall costing framework and certain UK-wide constants and adjustments;
- within this framework, each HEI would derive certain institution-specific values from its financial data;
- each Principal Investigator (PI) would decide the specific resources needed for a proposed project. These would include items currently eligible for Research Council support as direct costs, but also other directly-attributable resources such as the Investigator's own time;
- the PI's departmental research administrators would calculate the cost of these resources and add the indirect costs to be attributed to the project, thus arriving at the full economic cost. They would also confirm that other funds remained available from the HEI to cover that portion, if any, of the FEC that the Research Council or other sponsor would not pay;
- the HEI's administrators would check the validity of the proposal. This would include checking that the FEC would be fully covered, and also that the PI's time attributed to this project reconciled with other TRAC data both bottom-up and top-down (i.e. with this PI's other commitments, and with the total staff hours available to the institution).

42. Research Councils:

- would undertake peer review of academic quality;
- which would include consideration of the **resources** being proposed;
- but which would not examine the detailed **costs** of those resources (which the HEI would have calculated using TRAC);
- however, Research Councils would need to consider the **value for money** of the proposal, and might conclude that, overall, it did not present a sufficiently good use of funds to be selected.



43. As at present, HEIs will need to be able to account to Research Councils for the actual costs a project incurs, such as PI salary and equipment usage, while it is in progress and at its end.

Percentage of FEC to be paid

44. Our initial analysis suggests that if the £120 million were to be used to provide the same contribution level for all research proposals irrespective of type of research, the Research Councils would pay approximately 60–70% of full economic cost (assuming that fellowships are included at the same contribution level as research grants).

Issues raised by our proposal

Exposing differences in costs between institutions

45. Our proposal exposes differences in costs between institutions for the same kind of research. Some of these differences may be caused by quality – the institution's management may have chosen to hire better staff who may be more expensive, or may have invested in the most up-to-date equipment. Some differences may be caused by inefficiency, others by factors beyond the HEI's control such as its geographical

location or the fact that its estate includes many listed buildings. In the present system and the adaptations of it discussed above, these are ignored, hidden by general cross-institutional 'tariffs'.

46. We believe it is vital to expose these differences, otherwise HEIs and sponsors will remain unable to understand and take account of the true costs of research. But we recognise that it raises questions about how Research Councils should respond to this previously hidden information.

47. We recognise that acknowledging the existence of differences between institutions may create opportunities for gaming the system; on the other hand, HEIs may not wish to make projects appear more expensive than they should to peer review committees. The system will, however, need to guard against the re-emergence of a low price culture.

SUR 3.2: Is there a danger that our proposal might reward past infrastructure under-investment or current institutional inefficiencies? Does this matter and, if so, what can be done about it?

SUR 3.3: Are there general systemic problems with our proposal, e.g. the creation of perverse incentives, and if so what can be done to resolve them?

Bureaucracy and regulatory burden

48. The Government does not wish to impose unnecessary bureaucracy on HEIs. Implementing extensions to TRAC will cause a certain amount of work for administrative staff, but once the new methodology is in place and the various institution-specific cost elements have been calculated we see no reason why the process of applying for grants should be more burdensome for academics than at present. Nevertheless, we will keep this issue under consideration during implementation.

How to apportion the £120 million between Research Councils

49. As part of implementing this proposal we will need to clarify aspects of Research Council grant support and devise a way of allocating the £120 million available to the Councils from 2005–06 which:

- does not provide incentives to increase research volume unsustainably;
- does not disrupt the existing balance between different types of research;
- does not overwhelm the Councils with grant applications for work they do not currently support.

Some factors affecting these issues are now discussed in more detail.

Principal Investigator's time

50. The FEC of a project will reflect real inputs of time, equipment and other resources. In the present system, the input of PI's time to a project is generally masked. For certain kinds of research, such as mathematics or much of the arts and humanities, it could be the major cost of a research project. Since different kinds of research have different balances between PI input and other resources, our proposed system may change the relative demands on Research Council resources. (We also recognise the danger that some PI posts might become partially dependent on 'soft money', i.e. short-term funding streams, with consequences for teaching as well as research in departments which win fewer grants than expected.)

Balance of support across different types of research

51. We could manage the change in relative demands on resources by varying the percentage of the FEC of a project across different types of research, leaving Research Council resources proportionately unchanged. Or the same percentage could be paid for any kind of research, in which case it might be necessary to move resources in order to maintain the current balance of purchasing power across Research Councils. (Funding Councils might also wish to consider the relative weightings given to different areas of research in the distribution of QR.) One of the advantages of the second approach is that it would avoid boundary disputes between different kinds of research.

SUR 3.4: Do you agree that a single percentage of FEC should be used to calculate the Research Council contribution for all research proposals? What are the possible drawbacks and how might these be overcome?

SUR 3.5: Should we simply allocate the £120 million among the Research Councils in proportion to their current research spend in HEIs? Or is a more sophisticated approach required in order to protect the present broad balance of funding across the disciplines? If so, what might that approach be?

SUR 3.6: Will undesirable consequences arise within HEIs from local variations in FEC (e.g. between disciplines) and, if so, what should the Government do to mitigate them?

Greatly increased volume of applications

52. One effect of our proposal could be to encourage academics to apply to Research Councils for grants for work which is currently funded by the HEI from other sources. This would place additional burdens on the peer review system and risks overwhelming Councils, especially AHRC. It might also provide an incentive to increase research volume unsustainably.

SUR 3.7: How can excessive applications of this sort be prevented? One possibility might be for Research Councils to specify which types of proposals are not eligible for their support in order to 'define out' this problem. Would you favour such an approach?

SUR 3.8: Are there other technical issues raised by our proposal which you think we may have missed? How could they be resolved?

Phasing in the changes

53. Should these changes be implemented in one step or in a phased way? There are at least two ways in which phasing might occur:

- some institutions submit proposals on the current basis and others on the new basis, which can be referred to as running a 'mixed economy';
- all proposals are submitted using both methods of calculation ('shadow running').

54. From the perspective of Research Councils, there would be considerable disadvantages in running a mixed economy. It would mean peer review and other RC systems assessing proposals on different bases. It might also be unfair – identical proposals from different HEIs might receive different amounts of funding, even if the figure of 46% was increased. Initial indications are that it is likely to be possible to have the requisite systems, including both joint electronic submission (JeS) and back office processing systems and databases, in place in Research Councils by September 2004 to be able to process applications on the new basis, and work with the Councils is already in hand towards this end.

55. However, from the HEI perspective avoiding a mixed economy assumes that all HEIs will have the new costing methodology in place by September 2004 at the latest. Those who do not achieve this would be unable to submit new research proposals to Research Councils (although current grants would continue to be paid). The other benefits of having a costing methodology in place will no doubt act as an incentive to research-intensive HEIs while, at the other end of the spectrum, HEIs with little or no Research Council research activity will not suffer much penalty in making a slower transition. However, problems may arise in HEIs in the middle of the spectrum. We are minded **not** to adopt the mixed economy approach, but would welcome your views.

SUR 3.9: Are the benefits in implementing the costing methodology sufficient to persuade mid-research spectrum HEIs to invest the necessary resources to achieve this by September 2004?

56. Shadow running would require all Principal Investigators and HEI administrators to complete two application forms (or two sections of one form), one which would present eligible direct costs plus 46%, while the other would show the full economic cost of which an overall percentage would be paid. We do not believe this would add

a great deal of bureaucracy for academics as the key issue, what resources a project requires, need only be addressed once. Only the presentation would involve some duplication. The information on the new form would be used unless there were significant implementation problems, in which case Councils could use the old forms as a fall-back. Once Councils were satisfied that the new system was running smoothly, they would inform HEIs that the old form was no longer needed.

57. Shadow running presents disadvantages for both Research Councils and HEIs in terms of complexity and bureaucracy. However, given the significant nature of our proposals, including major changes to IT and other systems, it provides much more security than a 'big bang' approach.

SUR 3.10: Should the implementation of these reforms be phased in some way? If so, do you support the mixed economy approach, shadow running or some other method (please specify).

Other issues for the Dual Support system

HEIs with a small research-related element of their Funding Council block grants

58. Under the Dual Support system, Research Council grants have never been intended to cover the full cost of research. The remainder must be found by HEIs from their other sources of income. For many HEIs, a major element of this other income is Funding Council block grant support for research (QR) and infrastructure (SRIF). But because of the way in which institutions' QR funding is calculated with reference to Research Assessment Exercise outcome, HEIs comprised mainly or wholly of lower rated research departments may not have sufficient resources, whether from Funding Councils or elsewhere, to make up the difference. Despite this, some in this position will have academics who are able to make high-quality research proposals to the Research Councils.

59. The Government believes that the Research Councils should **not** treat academics in such HEIs differently. Instead, it is for HEIs in this position to decide if they wish to host Research Council projects and are able to do so while still ensuring their sustainability. If so, they must – as now – undertake to find the resources to cover the proportion of FEC not covered by Research Council grants, and if necessary demonstrate that they have done so.

Fellowships to be funded to the same level as other research projects

60. As described earlier, currently research fellowships funded by Government funds through the Research Councils, Royal Society and Royal Academy of Engineering do not attract indirect costs from these sponsors. This is also the case for British Academy fellows. There is some anecdotal evidence that some HEIs therefore find that hosting these prestigious fellowships can be expensive; certainly their full costs are currently hidden, borne by HEIs from their QR or other funds. The Government considers a fellowship to be a research activity and therefore intends to include them in the scope of this reform, paying the same percentage of full cost as for other research grants.

61. It should be relatively easy to use the extended TRAC methodology to estimate the FEC of a fellowship, as fellows are normally funded to spend most of their time on research.

Should research studentships be funded in the same way as research projects?

62. As mentioned earlier, Research Councils do not explicitly provide indirect costs for research studentships. They do, however, provide two associated funding elements (fees and Research Training Support Grant) which provide some measure of indirect cost contribution. In addition, research student numbers are taken into account in Funding Council research funding formulas.

63. It is not easy to see how the TRAC methodology could be applied to estimating the FEC of a studentship, as the teaching and research elements of a studentship are inextricably linked. It might also be necessary to review the purposes of fees and Funding Council support for research students in order to ensure that double funding did not occur. The cost implications are also significant; for example, as mentioned earlier Research Councils spent £164 million on studentship provision in HEIs in 1999–00 (about three-quarters of which went directly to students as stipends).

64. The advantage of explicitly providing an indirect cost element for research studentships is that this would provide a consistent and clear approach to their funding. The disadvantages are the need to investigate in detail current funding arrangements and the problems of unravelling the teaching and research elements in order to estimate the FEC of a studentship.

65. Overall, the Government consider the disadvantages to outweigh the advantages, and therefore proposes that current funding arrangements for research studentships should not be changed.

SUR 3.11: Do you agree that research studentships should be excluded from this reform?

4 What price should HEIs charge for non-Research Council projects?

Moving away from a low price culture

66. The increased resources for science announced in the 2002 Spending Review are very substantial but will not be sufficient on their own to ensure that the volume and quality of all scientific research carried out in UK HEIs is sustainable in the long term. One issue that HEIs will have to address to ensure sustainability is the pricing of research. Once the methodology described in Chapter 2 is in place it will allow institutions to calculate the full cost of research projects. The pricing of a project will then depend on the nature of the project and the relationship between the HEI and the sponsor of the research.

67. HEIs operate across a range of markets and should take account of conditions in those markets when considering what prices to charge. In some cases, the market price for an activity may be greater than its full economic cost. Whether or not this is the case, overall HEIs will be expected to ensure that at least the full cost of the totality of their research is recovered through their transactions with all the sources of funding involved. Should a sponsor be unwilling to cover the full costs of the research it wishes to commission, and if there are insufficient other funds available, the HEI will be expected to refuse the project.

68. This chapter provides guidance to HEIs on the dialogue they may wish to enter into with external bodies about individual research projects, and suggests instances where the price may be reduced through use of a contribution from the institution's internal resources to underpin the research.

Using the principles to decide whether to charge full economic cost

69. *Investing in Innovation* recognised that the volume of university research has increased substantially over the last decade and that HEIs have drawn funding from an increasingly diverse range of sources. Against this background, the Government wishes to emphasise the obligation on HEIs to run their research sustainably, i.e. to recover the full economic cost of all their research from the range of resources available to them, in aggregate, and taking one year with another. The recovery of costs has to allow HEIs to reinvest in equipment and other infrastructure to ensure sustainability in the long as well as the short term. (These issues are being taken forward with HEIs by Funding Councils and relevant Departments across the four parts of the UK.)

70. Funding Council support for research (QR) is provided to HEIs as part of an overall block grant which they can use as they see fit. However, the Government wishes to avoid public money being used to subsidise research with purely private benefits. The Government also recognises that some privately-sponsored research has major public benefits. The current situation, as indicated by TRAC data from the last few years, is that in general private research does not recover its full costs but is not cross-subsidised by publicly-funded research. However, given the increases in public investment announced by the Government, this may not remain the case in future. Therefore, one of the actions associated with putting the research base on a sustainable footing is to establish a greater clarity amongst all stakeholders about the uses to which Government support for research may legitimately be put. (Another action is the creation of a Funders' Forum, in which discussion of the sustainability of the UK research base and of research strategies can take place.)

71. In general, **funders** support HEI research for a range of reasons, some of which are for the public scientific[10] good, i.e. maintaining a healthy research base for the production of knowledge and trained people, and are, as such, congruent with the objectives of QR and SRIF. Other **users**, such as those commissioning projects of commercial interest, have equally valid reasons for supporting the research base which are nevertheless not in the scientific public good (even if they aim for the public good defined more widely than in this document, such as a productive economy or the need to base Government policy on a foundation of evidence). In the latter case it follows that HEIs should not use QR or SRIF to subsidise such research.

72. In practice, sponsors may have more than one reason for supporting a particular project, so there is a spectrum between 'funder' and 'user'. Therefore a sliding scale for deployment of HEIs' resources, including those received as QR and SRIF, on a research project can be envisaged between that appropriate for a Research Council grant to one with no input of such resources or even one on which an HEI makes a profit. Therefore the question arises as to what a sponsor should be charged for a particular project.

73. *Investing in Innovation* identified a set of principles to which HEIs should have regard when considering how to price the research projects that they take on (once they know the full cost) and whether it is appropriate to use QR and SRIF in a particular case. Comments would be welcome on the draft guidance on the application of these principles, as set out in Appendix A (where the modified text of the principles can also be found).

74. The Funding Councils intend to place requirements on HEIs concerning recovering full economic costs (see below for an example). These will be monitored using Transparency Review data. Any incomplete recovery of the full economic costs of research would need to be offset by an equivalent over-recovery on other activities. If recovery is insufficient the Funding Council will seek action from the HEI to address the situation.

10 including arts and humanities research in HEIs

75. For example, HEFCE intends to include the following requirement in its financial memorandum with the HEIs it funds:

"Institutions should know and understand the full economic costs of the activities that they undertake and this information should be taken into account within their management decision making processes.

Institutions should seek to recover the full economic costs of all their activities, whether pricing is determined by reference to those full economic costs or by reference to prevailing market conditions. While there may be cases for individual projects or activities to be priced at below their full economic costs, this should be done as a conscious decision, within the context of strategic objectives. Institutions are expected, taking one year with another, to recover the full economic costs of all their activities across the full range of their activities."

76. The Funding Councils are considering their approach to capital sustainability and intend to consult HEIs and others later in the year.

SUR 4.1: Do you feel the guidance in Appendix A is sufficiently detailed to allow academics and research administrators to apply the principles in practice?

SUR 4.2: Will funders and users of the research base also find the guidelines useful in understanding and negotiating the prices they are offered?

5 Responses

77. You can respond to this consultation by emailing Cynthia.Richardson@dti.gsi.gov.uk or by writing to Cynthia Richardson, Office of Science and Technology, Room 4105, Department of Trade and Industry, 1 Victoria Street, London SW1H 0ET. The deadline for responses is 30th September 2003. An electronic version of the template for responses (Appendix B) is available from *www.ost.gov.uk/invest-innov.htm*.

78. Your response to this consultation document may be made publicly available in whole or in part. If you do not wish all or part of your response (including your identity) to be made public, you must state in the response which parts you wish us to keep confidential. Where confidentiality is not requested, responses may be made available to any enquirer, including enquirers outside the UK, or published by any means, including on the Internet. (The Government's general criteria which Departments should follow for public consultations can be found at Appendix C.)

79. Additional copies of this document may be made without seeking permission. Copies may also be downloaded from OST's website: *www.ost.gov.uk/invest-innov.htm*.

Appendix A: Guidance on the pricing of research projects[11]

Introduction

The Government published its strategy for science, engineering and technology, *Investing in Innovation,* in July 2002. This document recognised the important contribution that the research base makes to innovation and to the UK economy. It also recognised that the volume of Higher Education Institution (HEI) research has increased substantially over the last decade and that HEIs have drawn funding from an increasingly diverse range of sources. In so doing, HEIs have, as the volume of research has increased, developed a low price culture in which they have failed to recover the full costs of their research, cross-subsidising it from other sources and making inadequate investment in infrastructure. This situation has increased the apparent productivity of the research base, but in a way that now risks its sustainability. As a result, a number of measures are identified in *Investing in Innovation* in order to put the funding of research on to a sustainable basis.

One of these measures is to establish a greater clarity amongst all stakeholders in the research base about the purpose and scope of Funding Council support for research (QR).

What is QR?

The Government provides two streams of funding for the research base, known as the Dual Support system. The first stream from the Funding Councils, generally known as quality-related or QR funding, provides an underpinning research capability for HEIs. (HEIs also receive block grant support for equipment and other capital expenditure via SRIF, the Science Research Investment Fund.) QR is intended to provide HEIs with:

- the salaries of permanent academic researchers;
- the costs of training new researchers;
- the base from which permanent academic staff can make and carry out credible proposals for research project funding from Research Council and other providers (including an underpinning for RC-funded projects);
- the freedom to pursue some blue-skies research;

11 This guidance is intended to stand alone, and hence duplicates some material from the main body of the consultation document.

- the resources to build research capabilities (infrastructure, support staff, basic consumables).

In certain disciplines, especially in the arts and humanities, QR is the main source of research funding.

Sponsors support HEI research for a range of reasons, some of which are for the public scientific[12] good and are, as such, congruent with the objectives of QR (and SRIF). Others, for equally valid reasons (such as commercial research), are not. In the latter case it follows that HEIs should not use QR or SRIF to subsidise such research.

In practice a sliding scale of prices to charge research sponsors can be envisaged, ranging from the rate for a Research Council grant to the full economic cost or even more for a purely commercial project (i.e. a sliding scale for the portion of the cost offset by deployment of Funding Council block grant and other sources of income). The question then arises of what a company, say, should be charged for a particular project.

Investing in Innovation identifies a set of principles to which HEIs should have regard when considering how to manage and price (with regard to the full economic cost) the research that they take on, and whether it is appropriate to use QR and SRIF to help support research. The *basic proposition* is that money from the Funding Councils should be used to support only that research which is intended to, or is otherwise likely to, generate a public scientific good.

This document is intended to provide practical guidance to the sector about the employment of these principles, both strategically for planning purposes and, at the level of individual project proposals, for setting prices. The Joint Costing and Pricing Steering Group (JCPSG) also provides guidance on pricing. The principles themselves have been developed since their original formulation in *Investing in Innovation* and are as follows:

Principles to guide the pricing of research projects

When undertaking research which is to be externally funded, other than by a Research Council, HEI research departments should have regard to the following points when deciding on the appropriate price to be charged for that research.

- Institutions must, taking one year with another, recover the full economic cost (FEC) of their research activities from an appropriate mix of external and internal sources.
- To do this, they must have in place systems which enable them to estimate with reasonable accuracy the FEC of research at project level, with particular reference to (i) the method of attributing indirect costs to front-line activities and (ii) the means of reflecting in prices the long-term research infrastructure needs of the institution.

12 including arts and humanities research

- Funding Council research funding is part of a block grant to institutions for them to use at their discretion. It is mostly distributed according to the quality and volume of research carried out, in order to encourage research of the highest quality. Institutions should consider the resources they wish to use to support research. If they are to undertake Research Council-funded research, they need to allocate appropriate funding to ensure that the full economic costs are met. Following this, to the extent that other resources are available, institutions may wish to support research funded by other external sponsors. Institutions need to consider carefully the level of support within the overall requirement to cover full economic costs. It is recommended that the level of publicly-derived support provided to any particular project should reflect the extent to which the research project in particular and the sponsor in question in general satisfy the following principles:

1. Research should demonstrably contribute to the enhancement of the UK research base or in some other way provide a public scientific good. An indicator of this may be that the results will be published openly in the academic literature and that the benefits of any intellectual property generated by virtue of the research will accrue to the HEI rather than the funder.[13]

2. The sponsor has a published research strategy, which, while recognising the advantages of having a plural funding system, nevertheless takes account of the strategy and priorities of other key funders, most notably the Research Councils and the larger research charities.

3. Research supported will be only of the highest quality. Sponsors wishing to benefit from public support will need to be able to demonstrate that they have project appraisal systems in place which ensure that only high quality research is funded.

Each of the principles is discussed below, and one or more 'checkpoints' are identified for each. These are listed together in the checklist at Appendix A.1.

One way of applying the checkpoints may be to apply the concept of funders and users of the research base. *Funders* are those bodies which, by and large, fund the research base and research within it for the purposes of generating public (scientific) goods – that is to say non-proprietary knowledge and technologies which are freely available. *Users* are those bodies that fund research in HEIs principally for their own private benefit. *Sponsors* combines both funders and users. The table opposite shows a summary of this division:

13 For the avoidance of doubt, these guidelines should not be taken as restricting the rights of companies and others to negotiate with universities about intellectual property rights. However, IPR ownership/benefit may be used as one of a number of indicators of whether a research project benefits the public scientific good and hence may be eligible for support from Funding Council block grants.

Sponsor	Funder of the research base	User of the research base
Research Councils	✓✓	
Funding Councils	✓✓	
NHS	✓✓	✓
Research Charities	✓✓	✓
EU	✓✓	✓
Industry	✓	✓✓
Government Departments	✓	✓✓

In practice, the situation is more complex than the table would suggest. In particular, some users of the research base also sponsor research in funder mode. This emphasises the point that the decision on whether to use Funding Council block grants to help support a particular research programme cannot solely be based on the type of sponsor.

In applying the checkpoints to a particular funding opportunity, it may also be helpful to compare the conditions attached to it with those attached to Research Council grants.

In the case of projects funded by Research Council research grants the work is expected to be fully funded by the public purse by a combination of Research and Funding Council resources, and, as such, the research results are expected to be generally available to the public, whether in academia, industry or more generally, and whether in the UK or elsewhere. Dissemination of research results is, in fact, a condition of Research Council grants.

Principle 1: Research should demonstrably contribute to the enhancement of the UK research base or in some other way provide a public scientific good. An indicator of this may be that the results will be published openly in the academic literature and that any intellectual property generated by virtue of the research will accrue in the HEI rather than the funder.

Checkpoint 1: is the project likely to lead to new knowledge of a fundamental nature?

Checkpoint 2: is the project likely to produce highly trained people for the enhancement of the research base or the wider benefit of the UK?

Checkpoint 3: do the conditions of the grant allow for the free publication of results without delay or approval by the sponsor?

Checkpoint 4: do the conditions of the grant allow the HEI to retain the benefits of the exploitation of any intellectual property arising from the work?

The research base can be seen as a combination of an accessible body of knowledge and skilled researchers. Generation of new knowledge, which is placed in the public domain, is therefore one way of enhancing the research base; training and development of skilled researchers is another. Such researchers can be at graduate, doctoral or

postdoctoral level; they may remain in the HEI sector at the end of the project, or transfer into the UK user base (industry, the public sector and commerce) to apply their skills and knowledge.

Research Council grants are provided primarily to support fundamental research that generates new knowledge rather than to generate intellectual property or be immediately applicable in a commercial environment. However, in cases where potentially exploitable results are obtained, Research Councils are prepared to accept delays in publication whilst the necessary protection is put in place.

Ownership of any intellectual property can be negotiated with the HEI. The university is expected to ensure that any potentially valuable results obtained in the course of the research are exploited, and that there is a suitable return to the organisation and the researchers from any such exploitation.

In some cases *industrial partners* co-fund a research project with a Research Council, either through a formal mechanism such as LINK[14] or through participation in a standard research grant. In such cases HEIs are expected to put collaborative arrangements on to a formal basis, for example through an agreement covering the contributions and rights of the organisations and individuals concerning exploitation. Such agreements are not expected to conflict with the normal Research Council requirements for open publication of results, although the industrial partner might reserve the right to comment on drafts prior to publication. In such circumstances a contribution of QR funds at a similar level to that applying to non-collaborative Research Council grants would be appropriate.

However, industry also funds projects alongside, but independent of, Research Council-funded work. In such cases, publication and the benefits from the exploitation of intellectual property rights might be treated differently; the case for supporting such projects with QR funds would depend in part upon those arrangements.

Industry and the private sector also fund research directly. There is a spectrum of activity, but the more the sponsor expects the outputs/outcomes of the work to be relevant to its immediate needs, the less generally applicable, or available, the research tends to be, thereby diminishing the potential of the project to enhance the research base. In these circumstances there should be an expectation that the sponsor will meet at least the full economic cost of the work.

Government Departments are major public users of HEI research, and their role is distinct from that of the Funding and Research Councils. Departments' concerns are usually to procure evidence to inform their policy-making, rather than to enhance the research base itself. In such cases any public benefit from such work is not directly scientific, and is not what is meant in this context by 'public good' in terms of the basic proposition in this document. *Investing in Innovation* makes it clear that Departments that seek primarily to commission applied research to address their short term policy needs should generally expect to receive no contribution to the costs of their research from Funding Council block grants.

14 www.ost.gov.uk/link

The NHS is an exception to this; it is an important funder of the research base, spending £74 million on clinical and other health-related research in 2001–02 and £401 million to meet the costs to it of research carried out by the Medical Research Council and other sponsors. This research helps to generate new knowledge for the public scientific benefit. When the NHS is acting in this mode it can expect to receive the same treatment as a Research Council.

The Government recognises the important role that *charities* play in UK research and the enormous value of the research they sponsor. The goal of the research charities is clearly to generate knowledge that will benefit the public. They thus provide an independent stream of research funding which complements that of the Research Councils and NHS. In principle this means that charity funding of research should be eligible for support from QR, when institutions wish to make funds available. In practice there are over 100 research funding charities with a wide range of aims, and each case will need to be determined on its own merits, taking account of all three principles. In so doing, HEIs should take careful account of funded posts or infrastructure that the charity may have provided, as this more general resource may comprise part of the funder's contribution to the full economic cost of the research.

Currently *European Union Framework Programmes* do not meet the FEC of the projects they fund. The Government recognises that HEIs are not individually able to negotiate for more favourable terms from the EU. HEIs must decide whether or not to take on such projects, on the understanding that they will have to provide the balance of the funding for the project from QR or other resources.

Principle 2: The sponsor has a published research strategy, which, while recognising the advantages of having a plural funding system, nevertheless takes account of the strategy and priorities of other key funders, most notably the Research Councils and the larger research charities.

Checkpoint 5: does the sponsor have a research strategy which takes account of the strategies of other major stakeholders in the research base?

Checkpoint 6: does the project make an undue demand on research base resources, locally, regionally or nationally?

The research base is a finite resource, the foundation for which is provided by public funds, for general public benefit. If one sponsor were to, for example, require 100% of all the research effort in a particular area, this would mean that other stakeholders could not access this resource. This might well not be in the general public interest, particularly if the sponsor had a focus on one specific aspect of a wider area.

HEIs should check whether sponsors have a research strategy, preferably in the public domain, which recognises the need to share the finite capacity and does not seek to unduly distort the research base, either in the short or the long term. Whilst there is inevitably a subjective element to these considerations, the underlying principle is to ensure that the sponsor is not making excessive demands on the research base to the detriment of others, whether locally in the HEI, regionally or nationally.

Principle 3: Research supported will be only of the highest quality. Sponsors wishing to benefit from public support will need to be able to demonstrate that they have project appraisal systems in place which seek to ensure that only high quality research is funded.

Checkpoint 7: does the sponsor use peer review or an equivalent objective and robust process to assess the quality of the research programme?

The Government believes that the public funds available for research should only be spent on research of the highest quality. This is essential if the UK is to remain at the forefront of scientific and technological developments. Research quality for both sides of the Dual Support system is assured by independent peer review. Having allocated QR selectively on the basis of research quality, we wish to encourage HEIs to pursue the highest quality research, thereby ensuring the continued health of the research base.

These guidelines suggest that, in order to secure support from institutions, other funders need to be able to demonstrate that a rigorous and appropriate assessment process has been used to select research projects of high quality. The effort devoted to assessment should reflect the level of the funders research budget; it is not expected that an organisation with a research budget of, say, £100,000 a year would match the processes employed by the Research Councils. In this context, it should be noted that peer review is not the only means whereby research quality can be assessed, but the HEI should seek to assure itself that the assessment process is objective and robust.

A distinction should be made between assessment processes that determine research quality and those that assess fit to the aims of the sponsor. Under these guidelines it would not be appropriate to use QR to support a research project that, while it meets the sponsors objectives, has not been judged to be of high research quality.

Annex A.1 Checklist to assist in the pricing of research projects

The rationale of the three principles has been described above, together with a series of indicators that can be developed from them. In order to help HEIs and sponsors apply these indicators, they are listed in the checklist opposite.

In practice most situations will lie somewhere between the extremes of each indicator and a five point sliding scale is proposed, to allow a specific situation to be assessed as to whether it 'does not meet the indicator at all' (1), 'meets the indicator entirely' (5) or lies somewhere in between. A total score could be assigned to each individual project, and HEIs might then judge how such scores compare between competing projects and the consequent allocation of QR funds.

No	Checkpoint	1	2	3	4	5
1	Is the project likely to lead to new knowledge of a fundamental nature?					
2	Is the project likely to produce highly trained people for the enhancement of the research base for the wider benefit of the UK?					
3	Do the conditions of the grant allow for free publication of results?					
4	Do the conditions of the grant allow for the HEI to retain the benefits of the exploitation of any intellectual property arising from the work?					
5	Does the sponsor have a research strategy, which takes account of the strategies of other major stakeholders in the research base?					
6	Does the project make an undue demand on research base resources, locally, regionally or nationally? (1=undue demand, 5=no undue demand)					
7	Does the funder use peer review or an equivalent objective and robust process to assess the quality of the research programme?					
Total Score						

Appendix B: Summary of questions and template for responses

An electronic version of the template overleaf is available from *www.ost.gov.uk/invest-innov.htm.*

Please email responses by 30th September 2003 to Cynthia.Richardson@dti.gsi.gov.uk. Written responses may be sent to the address mentioned in Chapter 5.

SUR	Question	Your answer Y/N (if appropriate)	Please give your reasons	Other comments
3.1	Are there options or alternatives that have not been set out here which would provide a better overall solution?			
3.2	Is there a danger that our proposal might reward past infrastructure under-investment or current institutional inefficiencies? Does this matter and, if so, what can be done about it?			
3.3	Are there general systemic problems with our proposal, e.g. the creation of perverse incentives, and if so what can be done to resolve them?			
3.4	Do you agree that a single percentage of FEC should be used to calculate the Research Council contribution for all research proposals? What are the possible drawbacks and how might these be overcome?			
3.5	Should we simply allocate the £120 million among the Research Councils in proportion to their current research spend in HEIs? Or is a more sophisticated approach required in order to protect the present broad balance of funding across the disciplines? If so, what might that approach be?			

SUR	Question	Your answer Y/N (if appropriate)	Please give your reasons	Other comments
3.6	Will undesirable consequences arise within HEIs from local variations in FEC (e.g. between disciplines) and, if so, what should the Government do to mitigate them?			
3.7	How can excessive applications of this sort be prevented? One possibility might be for Research Councils to specify which types of proposals are not eligible for their support in order to 'define-out' this problem. Would you favour such an approach?			
3.8	Are there other technical issues raised by our proposal which you think we may have missed? How could they be resolved?			
3.9	Are the benefits in implementing the costing methodology sufficient to persuade mid-research spectrum HEIs to invest the necessary resources to achieve this by September 2004?			
3.10	Should the implementation of these reforms be phased in some way? If so, do you support the mixed economy approach, shadow running or some other method (please specify).			

SUR	Question	Your answer Y/N (if appropriate)	Please give your reasons	Other comments
3.11	Do you agree that research studentships should be excluded from this reform?			
4.1	Do you feel the guidance in Appendix A is sufficiently detailed to allow academics and research administrators to apply the principles in practice?			
4.2	Will funders and users of the research base also find the guidelines useful in understanding and negotiating the prices they are offered?			

Appendix C: The consultation criteria

The Government's general criteria which Departments should follow for public consultations are as follows.

1. Timing of consultation should be built into the planning process for a policy (including legislation) or service from the start, so that it has the best prospect of improving the proposals concerned, and so that sufficient time is left for it at each stage.

2. It should be clear who is being consulted, about what questions, in what timescale and for what purpose.

3. A consultation document should be as simple and concise as possible. It should include a summary, in two pages at most, of the main questions it seeks views on. It should make it as easy as possible for readers to respond, make contact or complain.

4. Documents should be made widely available, with the fullest use of electronic means (though not to the exclusion of others) and effectively drawn to the attention of all interested groups and individuals.

5. Sufficient time should be allowed for considered responses from all groups with an interest. Twelve weeks should be the standard minimum period for a consultation.

6. Responses should be carefully and open-mindedly analysed, and the results made widely available, with an account of the views expressed, and the reasons for decisions finally taken.

7. Departments should monitor and evaluate consultations, designating a consultation co-ordinator who will ensure the lessons are disseminated.

8. The complete code is available on the Cabinet Office's web site, *www.cabinet-office.gov.uk/servicefirst/index/consultation.htm*.

References

Cross-Cutting Review of Science and Research: Final Report, HMT, DfES, DTI, March 2002. www.hm-treasury.gov.uk/spending_review

Framework for Higher Education in Scotland, Scottish Executive, March 2003. www.scotland.gov.uk

The Future of Higher Education, DfES, Cmnd 5735, January 2003. www.dfes.gov.uk/highereducation

Higher education in the learning society, Report of the National Committee of Inquiry into Higher Education, chaired by Lord Dearing, 1997

Investing in Innovation: A strategy for science, engineering and technology, DTI, HM Treasury, DfES, July 2002. www.ost.gov.uk/invest-innov.htm

JCPSG Strategy for Costing and Pricing (phase two), February 2003. www.jcpsg.ac.uk

The Quinquennial Review of the Grant Awarding Research Councils, DTI, 2001. www.ost.gov.uk/research/councils/quinquennial

Reaching Higher – A Strategy for Higher Education in Wales, Welsh Assembly, March 2002. www.wales.gov.uk

Review of Research Assessment website: www.ra-review.ac.uk.

Science Budget 2003–04 to 2005–06, DTI, December 2002. www.ost.gov.uk/research/funding

SET for Success: The supply of people with science, technology, engineering and mathematics skills, April 2002. www.hm-treasury.gov.uk/documents/enterprise_and_productivity/research_and_enterprise/ent_res_roberts.cfm

SET Statistics. www.ost.gov.uk/setstats

Short-term research contracts in science and engineering: Government response to the committee's eighth report of session 2001–02, House of Commons Science and Technology Select Committee, March 2003.

Copies of this document and an electronic version of the template for responses (Appendix B) can be found at *www.ost.gov.uk/invest-innov.htm*.

Printed in the UK
First published May 2003. Department of Trade and Industry. http://www.dti.gov.uk/